



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00838

July 30, 2003

Ms. Shannon C. Stewart
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation on the McCarthy Creek/Burlington Bottoms Habitat
Improvement Project, Willamette River, Multnomah County, Oregon

Dear Ms. Stewart:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of proposed projects to improve McCarthy Creek/Burlington Bottoms wildlife habitat in partnership between Bonneville Power Administration (BPA) and Ducks Unlimited (DU). In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette and Lower Columbia River chinook salmon (*Oncorhynchus tshawytscha*) and Lower Columbia River steelhead (*O. mykiss*). As required by section 7 of the ESA, we have included reasonable and prudent measures with non-discretionary terms and conditions that are necessary to minimize the potential for incidental take associated with this action.

This document also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Pat Oman of my staff in the Oregon Habitat Branch at 503.231.2313.

Sincerely,

Michael R. Crouse

D. Robert Lohn
Regional Administrator



cc: Chuck Lobdell, Ducks Unlimited
Roger Wood, OWEB
Sue Bielke, ODFW

Endangered Species Act - Section 7 Consultation Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

McCarthy Creek/Burlington Bottoms Habitat Improvement Project,
Willamette River, Multnomah County, Oregon

Agency: Bonneville Power Administration

Consultation
Conducted By: NOAA's National Marine Fisheries Service,
Northwest Region

Date Issued: July 30, 2003

Issued by: 
D. Robert Lohn
Regional Administrator

Refer to: 2003/00838

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1. ENDANGERED SPECIES ACT

1.1 Background and Consultation History

On June 27, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter from the Bonneville Power Administration (BPA) requesting informal consultation on the proposed implementation of a project to improve wildlife habitat in McCarthy Creek/Burlington Bottoms, along the Multnomah Channel and opposite Sauvie Island, in Multnomah County, Oregon. Ducks Unlimited, in partnership with BPA, proposes to construct a water control structure within McCarthy Creek, and to improve water passage in the area of Burlington Bottoms. The BPA has determined that Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*), Lower Columbia River (LCR) chinook salmon (*O. tshawytscha*) and LCR steelhead (*O. mykiss*) may occur within the project area. References and dates listing status and ESA section 4(d) take prohibitions can be found in the following Federal Register notices: 63 FR 13347 (March 19, 1998); 64 FR 14308 (March 24, 1999); and 65 FR 42422 (July 10, 2000).

After review of the biological assessment (BA) attached to the request for informal consultation, NOAA Fisheries determined that the presence of listed fish in the action area required formal consultation for this project. Consequently, NOAA Fisheries prepared this Opinion to address impacts to these species as a result of the proposed project. The objective of this Opinion is to determine whether the actions, including the proposed mitigation measures, are likely to jeopardize the continued existence of the above listed species.

1.2 Proposed Action

The proposed project is the construction of a water control structure within McCarthy Creek, which flows into the Multnomah Channel of the Willamette River beside Sauvie Island, and the improvement of wetland habitat in the area of Burlington Bottoms by building culverts that will allow hydrological connections between currently isolated water bodies.

The action area is defined by NOAA Fisheries' regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area is 100' upstream and 200' downstream of the project sites on McCarthy Creek and in the vicinity of the road and culvert area in Burlington Bottoms, and adjacent property including riparian habitat, substrate and the wetland surrounding the proposed construction sites.

The purpose of the Enyart Bottoms water control structure on McCarthy Creek is to restore approximately 110 acres of floodplain habitats, including 10 acres of emergent wetlands, 80 acres of wet meadow, and 20 acres of forested wetlands and riparian forest. By maintaining water levels in an area that was historically wetland, invasive non-native plant species can be controlled and greater wildlife diversity will be facilitated by the creation of improved waterfowl nesting habitat and rearing and resting habitat for juvenile salmonids. In the past, this

strategy has been successful in controlling reed canary grass, encouraging native emergent vegetation, and reducing waterfowl nest flooding. During high flows, the structure will not impede floodwaters, and during floodwater recession, fish passage will be available through open channels and through the structure itself when tides are rising. Construction is expected to take 10 to 14 days during the in-water work window of July 1 to October 31. Water levels are expected to be very low and, depending on weather conditions, the project area may be dry. Any fish that may be in water on site will be salvaged.

The road and culvert improvements in Burlington Bottoms will also restore native wetland plant communities, and allow for upstream migration of juvenile salmonids into an area of approximately 120 acres. The construction will take place in late summer of 2003, during the preferred in-water work period, when water levels in both areas will be low. Post-construction sampling and monitoring will be done to ensure that fish passage is taking place.

1.2.1 Enyart Bottoms/McCarthy Creek water control structure

The structure consists of a series of pre-cast box culverts and an overflow channel, placed approximately 360 feet above (upstream) of where McCarthy Creek enters the Multnomah Channel. At this site, permanent water flows from springs and the creek. The construction will affect about 0.17 acres of area, with 405 cubic yards (cy) of fill and 335 cy of material removed. The overflow channel will include erosion control rock placed along the banks, and 2-ft by 2-ft rock check weirs will be incorporated into the design. The creek banks and streambed around the structure will be graded to install the culverts, and an access road will be improved to allow heavy equipment to operate.

1.2.2 Burlington Bottoms culvert and road improvements

This site will also be modified with the installation of a series of pre-cast box culverts. A small access road will be improved to allow for continued maintenance of the structure and culverts. The structure for water control will impact about 0.11 acres of area, using 310 cy of fill and 213 cy of cut. Extracted materials will be placed on an upland area as part of the access road improvement plan. In addition, three large arch culverts will be placed in three locations along the existing access road to allow for the free flow of water, thus restoring connections to the wetland in this area.

As part of the proposed project, the applicant will maintain a monitoring plan for the site through August 2008. Sampling for fish presence and possible entrapment will be done upstream and downstream of the proposed water control structure. Management of the structure will be adjusted based on the monitoring findings.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

Essential habitat features for salmonids are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. The proposed action may affect the essential habitat features of water quality, water quantity and safe passage conditions. References for further background on listing status and biological information can be found in Table 1.

The LCR chinook salmon includes both the fall-run and spring-run stocks. Adults migrating to the Clackamas River may be present in the Lower Willamette River starting in August and continuing through November, with peak migration occurring in September and October. Juveniles in this ESU would be expected in the Lower Willamette River starting in March, continuing through July, with peak occurrence in April, May, and June.

Adults from the UWR chinook salmon ESU migrate through the Lower Willamette River beginning in March, and complete their migration by the end of July, with the peak between late April and early June. Chinook smolts would typically pass through the action area from January through June, and from August through December. Juveniles would be expected in the Lower Willamette River anytime from March through mid-December.

LCR steelhead move through the Lower Willamette River throughout the year. Peak movement is expected from late April through May. Juvenile steelhead migration peak in April and May. Juveniles from any of these stocks may use the off-channel habitat in McCarthy Creek during high flows. Based on this information, juveniles may be present in the action area any time during migration and high flow periods.

Table 1. References for Additional Background on Listing Status, Biological Information, and Protective Regulations for the ESA-Listed Species Considered in this Opinion.

Species / ESU	Status	Protective Regulations	Biological Information
Chinook salmon (<i>O. tshawytscha</i>)			
Lower Columbia River	Threatened 3/24/00; 64 FR 14308	7/10/00; 65 FR 42422	Myers <i>et al.</i> 1998; Healey 1991
Upper Willamette River	Threatened 3/24/00; 64 FR 14308	7/10/00; 65 FR 42422	Myers <i>et al.</i> 1998; Healey 1991
Steelhead (<i>O. mykiss</i>)			
Lower Columbia River	Threatened 3/19/98; 63 FR 13347	7/10/00; 65 FR 42422	Busby <i>et al.</i> 1995; 1996

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed species' life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the listed species under the existing environmental baseline.

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into

account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for salmonids to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, rearing habitat and over-wintering refugia. Salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries usually defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and utilizes a “habitat approach” to its analysis. The current status of listed salmonids in the Willamette River, based upon their risk of extinction, has not significantly improved since the species were listed. NOAA Fisheries is not aware of any new data that would indicate otherwise.

2.1.2.2 Environmental Baseline

The Willamette River watershed covers a vast area (11,500 square miles) bordered on the east and west by the Cascade and the Pacific Coast ranges. The Willamette River watershed is the largest river basin in Oregon. It is home to most of the state’s population, its largest cities, and many major industries. The watershed also contains some of Oregon’s most productive agricultural lands and supports important fishery resources (City of Portland 2001).

The uplands (Coast and Cascade Ranges) receive about 80% of the precipitation falling on the Willamette River basin, and store much of this water as snow. Ecosystem productivity in these upland streams is relatively low, with aquatic insects gleaning much of their diet from material that falls into running water. In larger, slower tributaries, more plant material is produced in the stream itself. The mainstem supports a highly productive algal community that blooms as temperatures rise in the summer. Insects and some vertebrates feed on these plants, and many vertebrates, including salmonids, feed on stream-dwelling insects. Much of the habitat for Willamette River salmonids has been degraded by various land use practices or eliminated by dams. Wild salmonid populations have declined precipitously over the last century in the Willamette River (WRI 1999).

In the immediate vicinity of the project sites, McCarthy Creek has been channelized and now flows through an artificially straight stretch before going under train tracks and Highway 30 to

reach the Multnomah Channel. Where once this was a braided channel flowing out of the hills to the west, the creek now parallels the Cornelius Pass road, which runs along the west side of the stream. This has resulted in the loss of off-channel rearing habitat and wetland areas along the margins of the creek.

Similarly, the construction of the railroad tracks in this area also affected the hydrological characteristics of the small, unnamed creeks that flow out of the Forest Park hills in the Burlington Bottoms project area. When they reach the lowlands they all must flow through culverts and ditches underneath and alongside the highway and railway tracks. Because riparian vegetation is reduced in these areas, the water tends to get warmer and slower, particularly in the summer; and culverts that impede fish passage reduce the amount of rearing and resting habitat for migrating juveniles, as well as blocking access to spawning areas for adults.

The BA that accompanied the request for consultation identifies the following watershed quality parameters as not properly functioning or at risk: temperature, sediment, chemical contaminants/nutrients, dissolved gas/toxics, physical barriers, substrate, large woody debris, pool frequency and quality, off channel habitat, refugia, the width to depth channel ratio, streambank conditions, floodplain connectivity, peak/base flows, road density and location, disturbance history, and riparian reserves.

In summary, basin health has been affected in terms of water and habitat quality and quantity. Many native species have been adversely affected due to the introduction of non-native species, loss of habitat, habitat degradation, and contaminated waters which impede species' development. Many streams and rivers in the basin have high temperatures and insufficient flows during summer months, which adversely impacts aquatic species such as salmon and steelhead. Low flows also reduce the ability of the river to dilute contaminants, the presence of which may lead to dangers for both aquatic species and humans. Such contaminants are often found with great frequency in the basin as a result of erosion from agricultural, industrial, urban and forested lands. Increased population and development have further compounded these problems, resulting in the loss of much critical habitat and increased pollution (WRI 1999).

2.1.3 Analysis of Effects

2.1.3.1 Effects of the Proposed Action

Water regulation may change water quality factors such as temperature and turbidity, as well as the production of salmonid prey. Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration. The proposed project will be constructed during the

preferred in-water work window when the action area is expected to be almost completely dry. Excessive turbidity is not expected due to the lack of water present during construction.

Impounded waters, like the wetland envisioned at McCarthy Creek, provide habitat for salmonid predators. Monitoring the proposed project will identify listed species as well as predatory species that may be present in the project area. Channel complexity is reduced, affecting fluid dynamics and substrate types. The proposed project will create a large wetland pond within the action area by holding back water at the water control structure. By holding the water from October to June, the created pond will have higher temperatures than would be the case in an actively flowing stream. While this area may provide off-channel habitat available to juvenile salmonids in the area, it may also harbor predators and alter the flow regime. If predatory species are present and affecting the survival of listed species, the water management plan and/or the structure may need modification. The existing flow regime triggers the movement of juveniles for downstream migration. Migration of juveniles may be delayed because of increased time needed to find an egress from the wetland. The management of the water control structure may also delay migration, since the structure will hold back water from October through June.

The culvert improvements at the Burlington Bottoms site may result in short-term adverse effects. These would be the result of turbidity caused by construction, and the potential for chemical contaminants entering the water should there be a fuel spill or leakage from heavy equipment. Because the effects from TSS would be short-lived, and a pollution plan will reduce the likelihood of any contaminant entering the stream, the impacts from this project will be limited. The long-term effects of improved fish passage are expected to be evident should adult salmon use the stream areas above the culvert for spawning. Sampling and monitoring will evaluate the effectiveness of this project.

Current monitoring projects have shown that juveniles are present in the surrounding area. Proposed monitoring will evaluate fish presence in the project area and the success of passage through the McCarthy Creek water control structure and at the Burlington Bottoms culverts. Handling of juvenile fish will be necessary during sampling. Using appropriate sampling methods mortality is not expected.

Over the long term, provided there is adequate passage, the projects are expected to benefit juvenile salmonids by providing off-channel habitat. Water control is anticipated to help control reed canary grass and improve emergent native vegetation. Vegetation diversity will allow for an increased insect and refugia variety available to juvenile salmonids.

Generally, as a result of the proposed action, the baseline habitat indicators will largely remain the same, with some improvements in the quantity and quality of off-channel habitat, refugia, floodplain connectivity, and riparian reserves.

Dewatering of the area for construction may necessitate salvage of juvenile fish if the project area is still under water. This may result in some mortality of juvenile salmonids. The proposed

removal method of dip netting and transfer downstream should minimize any potential mortality.

2.1.3.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of “future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-Federal activities within the action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

2.1.4 Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of listed species. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries believes that the proposed action would cause a change in fish passage, but passage will be maintained by the management of the structure and the open channels north of the structure. Direct mortality is not expected. In-water work will be performed during the in-water work window, when the project area is expected to have very low water present. Erosion control measures will be employed as part of the proposed project. The proposed monitoring plan will ensure that passage is being maintained for listed species. If monitoring reveals that passage is not properly provided, consultation will be reinitiated and the structure will be modified to provide passage in and out of the structure for listed species.

2.1.5 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). Moreover, if monitoring at the project site reveals that listed species are being stranded or delayed in their migration, consultation must be reinitiated.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. “Harass” is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. “Incidental take” is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in the incidental take resulting from the disturbance and displacement of juvenile ESA-listed species from the action area due to use of equipment, delayed migration, and stranding of individuals resulting from the management of water levels. Even though NOAA Fisheries expects some low level of non-lethal incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected amount of take as “unquantifiable.” Handling of juvenile steelhead or chinook salmon during the work isolation process may result in incidental take of individuals if juvenile salmonids are present during the construction period. NOAA Fisheries anticipates non-lethal incidental take of up to 30 individuals, of which, lethal take of three juvenile steelhead or chinook salmon could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion. Based on the information provided by the BPA and other available information, NOAA Fisheries anticipates that, for the overall project, an unquantifiable amount of incidental take could occur as a result of the action covered by this Opinion. The extent of the take is limited to stranding, delayed migration, handling and disturbance resulting from construction activities as well as water level management in the wetland created by the water control structure adjacent to McCarthy Creek.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The BPA shall include measures that will:

1. Minimize incidental take from general construction by excluding unauthorized permit actions and applying permit conditions that avoid or minimize adverse effects to riparian and aquatic systems.
2. Complete a comprehensive monitoring and reporting program to ensure implementation of these conservation measures are effective at minimizing the likelihood of take from permitted activities.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, BPA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (general conditions for construction, operation and maintenance), the BPA shall ensure that:
 - a. Timing of in-water work. Work within the active channel will be completed during the ODFW (2000) preferred in-water work period ¹, as appropriate for the project area, unless otherwise approved in writing by NOAA Fisheries.
 - b. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
 - c. Fish passage. Passage will be provided for any adult or juvenile salmonid species present in the project area during construction, and after construction for the life of the project.
 - d. Pollution and Erosion Control Plan. A pollution and erosion control plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by BPA or NOAA Fisheries.
 - i. The pollution and erosion control plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
 - (1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit

¹ Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf); U.S. Army Corps of Engineers, Seattle District, *Approved Work Windows for Fish Protection* (Version: 13 October 2000) (http://www.nws.usace.army.mil/reg/Programmatic_Consultations/TimCond/WorkWinI.pdf)

- operations, haul roads, equipment and material storage sites, fueling operations, and staging areas.
- (2) Practices to confine, remove and dispose of excess concrete, cement and other mortars, or bonding agents, including measures for washout facilities.
 - (3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
 - (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.
 - (5) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
- ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.²
 - (1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.
 - (2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.
- e. Construction discharge water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.
- i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.
 - ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed four feet per second.
 - iii. Spawning areas, marine submerged vegetation. No construction discharge water may be released within 300 feet upstream of active spawning areas or areas with marine submerged vegetation.
- f. Preconstruction activity. Before significant³ alteration of the project area, the following actions must be completed:

² "Working adequately" means no turbidity plumes are evident during any part of the year.

³ "Significant" means an effect can be meaningfully measured, detected or evaluated.

- i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
- ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite:
 - (1) A supply of sediment control materials (*e.g.*, silt fence, straw bales). ⁴
 - (2) An oil-absorbing, floating boom whenever surface water is present.
- iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.
- g. Heavy Equipment. Use of heavy equipment will be restricted as follows.
 - i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally sized, rubber-tired).
 - ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows:
 - (1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any stream, water body or wetland.
 - (2) All vehicles operated within 150 feet of any stream, water body or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by BPA or NOAA Fisheries.
 - (3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.
 - iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, water body or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.
- h. Site preparation. Native materials will be conserved for site restoration.
 - i. If possible, native materials must be left where they are found.
 - ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.

⁴ When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

- iii. Any large wood ⁵, native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.
- i. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed as quickly as possible.
 - i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break-in work unless construction will resume work within seven days between June 1 and September 30, or within two days between October 1 and May 31.
 - ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.
- j. Site restoration. All streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows.
 - i. Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (such as large woody debris), channel conditions, flows, watershed conditions, and other ecosystem processes that form and maintain productive fish habitats.
 - ii. Streambank shaping. Damaged streambanks must be restored to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation.
 - iii. Revegetation. Areas requiring revegetation must be replanted before the first April 15 following construction with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs, and trees.
 - iv. Pesticides. No pesticide application is allowed, although mechanical or other methods may be used to control weeds and unwanted vegetation.
 - v. Fertilizer. No surface application of fertilizer may occur within 50 feet of any stream channel.
 - vi. Fencing. Fencing must be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- k. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300 feet upstream of spawning habitats.
- l. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the

⁵ For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. The following rules will apply during construction activities when ESA-listed fish are handled.

- (1) A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.
- (2) If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.⁶
- (3) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during sampling and processing procedures. Adequate circulation and replenishment of water in holding units is required. When using gear that capture a mix of species, ESA-listed fish must be processed first to minimize the duration of handling stress. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
- (4) Captured fish must be released as near as possible to capture sites.
- (5) ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.
- (6) Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.
- (7) NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.
- (8) Each ESA-listed fish handled out-of-water must be anesthetized when necessary to prevent injury or mortality. Anesthetized fish must be allowed to recover (*e.g.* in a recovery tank) before being released.
- (9) ESA-listed juvenile fish must not be handled if the water temperature exceeds 70 degrees Fahrenheit at the capture site.

2. To implement reasonable and prudent measure #2 (monitoring), the BPA shall:

a. Implementation monitoring. Submit a monitoring report to NOAA Fisheries within 120 days of project completion describing BPA's success meeting permit conditions and including the following information.

i. Project identification.

- (1) Permittee name, permit number, and project name.

⁶ National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (<http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf>).

- (2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS seven-minute quadrangle map
 - (3) BPA contact person.
 - (4) Starting and ending dates for work completed.
- ii. Photo documentation. Photos of habitat conditions at the project and any compensation site, before, during, and after project completion.⁷
 - (1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
 - (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.
- iii. Other data. Additional project-specific data, as appropriate for the project.
 - (1) Work cessation. Dates work cessation was required due to high flows.
 - (2) A summary of pollution and erosion control inspections, including any erosion control failure, hazardous material spill, and correction effort.
 - (3) Site preparation.
 - (a) Total cleared area – riparian and upland.
 - (b) Total new impervious area.
 - (4) Site restoration.
 - (a) Finished grade slopes and elevations.
 - (b) Log and rock structure elevations, orientation, and anchoring (if any).
 - (c) Planting composition and density.
 - (d) A five-year plan to:
 - (i) Inspect and, if necessary, replace failed plantings to achieve 100% survival at the end of the first year, and 80% survival or 80% coverage after five years (including both plantings and natural recruitment).
 - (ii) Control invasive non-native vegetation.
 - (iii) Protect plantings from wildlife damage and other harm.
 - (iv) Provide the BPA annual progress reports.
- iv. Fish salvage reporting. A report of the number and status of fish salvaged as part of the construction.
- v. Fish monitoring. Fish will be monitored using net sampling at the structure site and at the northern channels to gather information on presence and passage. If predatory fish are found during monitoring,

⁷ Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

appropriate food web studies as agreed on by NOAA Fisheries, will be undertaken as part of the monitoring program.

- vi. If monitoring shows any stranding or delayed migration timing for any listed species, consultation will be reinitiated and the structure will be modified to provide passage.
- b. Failure to provide timely monitoring causes incidental take statement to expire. If the BPA fails to provide specified monitoring information, NOAA Fisheries will consider that a modification of the action that causes an effect on listed species not previously considered and causes the incidental take statement of this Opinion to expire.
- c. Submit monitoring reports to:
 - NOAA Fisheries
 - Oregon Habitat Branch, Habitat Conservation Division
 - Attn: **2002/00584**
 - 525 NE Oregon Street, Suite 500
 - Portland, OR 97232-2778
- d. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to:
 - NOAA Fisheries Law Enforcement Office
 - Vancouver Field Office
 - 600 Maritime, Suite 130
 - Vancouver, WA 98661
 - 360.418.4246

Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENSON ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999).

In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the BPA.

3.3 Proposed Actions

The proposed action and action area are detailed above in sections 1.2 and 2.1.1 of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of Starry flounder (*Platichthys stellatus*) and chinook salmon.

3.4 Effects of Proposed Action

As described in detail in section 2.1.3 of this document, the proposed action may result in short-term adverse effects to a variety of habitat parameters. These adverse effects are: temporarily decreased water quality (due to turbidity).

3.5 Conclusion

NOAA Fisheries concludes that the proposed action will adversely affect the EFH for starry flounder (*Platichthys stellatus*) and chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the BPA, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the terms and conditions outlined in section 2.2.3 are generally applicable to designated EFH for the species in section 3.3, and address these adverse effects. Consequently, NOAA Fisheries incorporates them here as EFH conservation measures.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of

measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The BPA must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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